Purpose

The purpose of this unit is to explore the smallest unit of life, which is the cell. The unit begins by introducing the basic cell theory and the timeline in which it was created. It also describes the difference between a theory and a hypothesis. Section 2 introduces the microscope and the impact it has had on science. Cells are then broken down into two basic types, the eukaryotic and prokaryotic, indicating prokaryotic as the earliest type of living cells. Cellular membranes are introduced along with the other membranous organelles followed by a more detailed description of what makes up both animal and plant cells. The functions of the cell such as diffusion, transport, and energy are addressed. The division and specialization of cells is the last topic to be covered in this unit. Each lesson addresses these topics in a variety of ways (labs, activities, power points, videos, etc) in order to keep the students engaged and to prevent the unit from becoming monotonous.

**LS1 - All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).**

***LS1 (9-11) INQ+SAE+FAF -1***

*Use data and observation to make connections between, to explain, or to justify how specific cell organelles produce/regulate what the cell needs or what a unicellular or multi-cellular organism needs*

*for survival (e.g., protein synthesis, DNA replication, nerve cells).*

**LS1 (9-11)-1**

**Students demonstrate understanding of structure and function-survival requirements by**…

**1a** explaining the relationships between and amongst the specialized structures of the cell and their functions

(E.g. transport of materials, energy transfer, protein building, waste disposal, information feedback, and even movement).

**1b** explaining that most multicellular organisms have specialized cells to survive, while unicellular organisms perform all survival functions,(e.g. nerve cells communicate with other cells, muscle cells contract, unicellular are not specialized).

**LS1 (Ext)-1**

**Students demonstrate understanding of structure and function-survival requirements by**

**1bb** identify various specialized cells and common unicellular organisms in diagrams, photographs and/or microscopic slides.

**1cc** describing the origin and nature of stem cells and their potential for curing disease